

Application No.: 10/635,649

AMENDMENT TO THE CLAIMS

Please amend the claims as follows:

1. (Currently amended) An object lens for an optical pickup, said object lens being of finite conjugate type for use in an optical pickup having a unit, in which a semiconductor laser diode array including light emitting portions for respectively emitting light of different wavelengths, a photo detector and said object lens are integrally and fixedly arranged, and capable of recording data in and reproducing data from a first optical recording medium and a second optical recording medium respectively having recording faces at different heights by irradiating said first optical recording medium and said second optical recording medium with a laser beam through said object lens,

~~said optical pickup including a semiconductor laser diode array having light emitting portions for respectively emitting laser beams of different wavelengths, and~~

curvature and aspheric coefficients of said object lens being defined ~~designed~~ to have numerical aperture controlled to be changed in accordance with switching between said different wavelengths, whereby allowing said laser beam to be focused on said first optical recording medium or said second optical recording medium.

2. (Cancelled)

3. (Original) The object lens of Claim 1,

wherein a distance between said light emitting portions of said semiconductor laser diode array is 270 μm or less.

Application No.: 10/635,649**4. (Original) The object lens of Claim 1,**

wherein change of the numerical aperture of said object lens is controlled in accordance with the switching between said different wavelengths in such a manner that, in the case where a laser beam of a wavelength suitable to said first optical recording medium is allowed to pass through said object lens for irradiating said first optical recording medium, portions of said laser beam respectively passing through a circular center region including a lens optical axis and a ring-shaped intermediate region around said center region are focused on the recording face of said first optical recording medium, and that in the case where a laser beam of another wavelength suitable to said second optical recording medium is allowed to pass through said object lens for irradiating said second optical recording medium, portions of said laser beam respectively passing through said center region and a ring-shaped peripheral region around said intermediate region are focused on the recording face of said second optical recording medium.

5. (Original) The object lens of Claim 4,

wherein said center region and said intermediate region are defined by an identical lens function.

6. (Currently amended) A method for designing an object lens for an optical pickup,

said object lens being finite conjugate type for use in an optical pickup having a unit, in which a semiconductor laser diode array including light emitting portions for respectively emitting light of different wavelengths, a photo detector and said object lens are integrally and fixedly arranged, and capable of recording data in or reproducing data from a first optical recording medium and a second optical recording medium respectively having recording faces at

Application No.: 10/635,649

different heights by irradiating said first optical recording medium and said second optical recording medium with a laser beam through said object lens,

~~wherein, in the case where said object lens is disposed in a position fixed against a semiconductor laser diode array including light emitting portions for respectively emitting laser beams of different wavelengths, curvature and aspheric coefficients of said object lens are~~
defined so that numerical aperture of said object lens is controlled to be changed in accordance with switching between said different wavelengths for allowing said laser beam to be focused on said first optical recording medium or said second optical recording medium.

7. (New) The object lens of Claim 1,

wherein spherical aberration in a predetermined region of said object lens is changed.